

feet of us, voicing protest, without losing the small insects which crammed his beak. We erected our photographic blinds to observe the birds better, and to secure our film record for our picture library. Hardly had we concealed ourselves until the male was back, chucking insects down coöperative young, but the female would not come to the nest, although she sat some distance away with food-filled beak. When only eggs were in the nest, however, conditions were reversed, for then it was the female that returned to the nest and the male remained in the distance. We worked with too few birds to generalize, however: it may have been that other individuals would have reacted differently. We found twelve nests of the Chestnut-collared Longspurs in the course of our ramblings over this isolated bit of Colorado prairie, and were glad of a chance to add a pictorial record of this species to our files of the nesting birds of our state.

## LITERATURE CITED

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## NEST BUILDING BEHAVIOR IN THE LOGGERHEAD SHRIKE GROUP

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Statements concerning male Loggerhead Shrikes<sup>1</sup> (*Lanius ludovicianus*) aiding in nest building are placed by Miller<sup>2</sup> in the group of writings on life history which "yet are not founded on well proved facts". Without regard to whether or not such behavior is normal, this paper will attempt to show that one male Loggerhead assisted in nest building.

The incomplete nest of this bird and his mate was discovered in Woodbury Township, Stutsman County, North Dakota, on May 6, 1937, in a dead poplar tree hardly forty-five yards from a farmhouse. It rested about sixteen feet from the ground in an angle formed by the

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<sup>1</sup>This is a case to show the inadequacy of the vernacular names in the current A. O. U. Check-List. The author does not wish to distinguish between *Lanius ludovicianus migrans* and *L. l. excubitorides*. But there is no common term to include the two subspecies. Hence the term "Loggerhead" is here allowed to stand for the specific group.—ED.

<sup>2</sup>Systematic revision and natural history of the American shrikes (*Lanius*). By Alden H. Miller. Univ. Calif. Publ. Zool., Vol. 38, No. 2, 1931, pp. 11-248, page 168.

bole and a cluster of twigs and slender branches springing from the east quadrant of the trunk.

These birds were not shy. In fact, late in April they had examined the Virginia creeper about the porch on the farmhouse while in search of a nest site. From May 6 to May 27 (when the eggs were destroyed by some marauder) the activities at the nest were observed from a distance of twenty-eight yards without the birds being disturbed. As was to be expected, they hotly resented all trespassing in the immediate vicinity of the nest.

When first located, the nest was so incomplete that a working bird could be seen plainly through the walls. Materials used in the construction of it were fragments of Russian thistles and soft plant substances. From May 6 through May 14, 604 minutes were spent in watching the building activities at the nest. During this time the birds brought material to the nest thirty-five times with time intervals between trips averaging 8.5 minutes. The calculation of time intervals was based only upon time lapses between trips. A more detailed summary of these data is given in Table I.

TABLE I. Summary of the nest-building activities of a pair of Shrikes (*Lanius ludovicianus* subsp.) as further described in the accompanying paper.

Date	Hours of Observation	No. Min. Spent in Observation	No. Trips to Nest with Material	Average No. Minutes Between Trips	
May 6	7:37-8:18 A.M.		12	3.16	
	11:14-11:45 A.M.	91	7	4.42	
	11:45 A.M.-12:04 P.M.		0	0	
May 7	12:50-1:04 P.M.	14	0	0	
May 8	2:56-3:11 P.M.	15	0	0	
May 9	8:20-9:35 A.M.	75	7	9.07	
May 10	2:27-4:30 P.M.	123	0	0	♀ first fed by ♂
May 11	3:15-3:27 P.M.	12	0	0	
May 12	7:12 P.M.	1	0	0	A bird busy in nest
	9:35-10:27 A.M.		3	14.25	
	10:55 A.M.-12:16 P.M.	168	6	13.20	
May 13	12:44-1:19 P.M.		0	0	
	2:03-3:48 P.M.	105	0	0	
May 14					
May 15					First egg laid

In the enumeration of details relative to the building activity of the male, "arrange" implies all activity of a bird in a nest under construction while making newly gathered material a part of that nest.

On May 6 at 7:59 A.M., a bird entered the nest with material and arranged. One minute later (8:00) the other bird of the pair brought material and gave it to the first bird which continued arranging until

8:01. Immediately the second bird, without material, entered the nest and arranged for a few seconds only. By 8:05 A. M. a bird again entered the nest with material and arranged. It left at 8:06 when the other bird entered and arranged material it had brought until 8:07.

At 8:20 A. M., May 9, a bird entered the nest without material and stayed only a few seconds. At 8:21 the other bird entered with material and arranged while the bird that had first been in the nest rested on a near twig.

Then at 11:31 A. M., May 13, a bird entered the nest from the south without material and arranged. By 11:33 the second bird brought material to the nest tree, but did not go to the nest before going to the fifth poplar south. Here, after dropping some material, the bird went to the nest and deposited the remainder. It was arranged by the bird that had been busy in the nest since 11:31 and that left at 11:34½.

These are the only instances observed in which the two birds brought material to, or worked about, the nest at the same time. Instances in which one bird gave material to another were studied closely. In no case was the material mistakable for food. Also at none of these times was begging heard.

One of these birds must have been the male of the pair since at no time were more than two birds seen in the territory. Although in certain species individuals in addition to the mated pairs concerned are known to assist in caring for broods of young (Skutch, A. F., "Helpers at the Nest", *Auk*, LII, p. 257), such behavior would seem to be intolerable to shrikes, not to mention assistance in nest building.

Whether or not the male shared equally with the female in nest building could not be determined objectively. However, since at only six times were visits to the nest concurrent for the two birds, and furthermore, since males usually attend the females rather closely during nest building (Miller, *op. cit.*, p. 166) making possible participatory visits seldom other than coincidental with those of the females, it would seem reasonable to conclude that this male did not assume any great portion of the burden of nest building.

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